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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/526,546	03/03/2005	Uwe Gorges	034193-016	5276

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EXAMINER

EDWARDS, LAURA ESTELLE

ART UNIT	PAPER NUMBER
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1792

NOTIFICATION DATE	DELIVERY MODE
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04/24/2008

ELECTRONIC

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Notice of the Office communication was sent electronically on above-indicated "Notification Date" to the following e-mail address(es):

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Office Action Summary	Application No. 10/526,546	Applicant(s) GORGES ET AL.	
	Examiner Laura Edwards	Art Unit 1792	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 01 February 2008.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-16 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-16 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☒ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | Paper No(s)/Mail Date. _____ |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____ |

Specification

The disclosure is objected to because of the following informality: on page 2, line 29, the reference to "claim 1" should be removed. Claims should not be referenced in the specification.

Appropriate correction is required.

Claim Rejections - 35 USC § 112

Claims 1-16 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

In claim 1, line 6, "the sound particle velocity" lacks antecedent basis.

Claim Rejections - 35 USC § 103

The text of those sections of Title 35, U.S. Code not included in this action can be found in a prior Office action.

Claims 1-5, 8, 10-12, 15, and 16 are rejected under 35 U.S.C. 103(a) as being unpatentable over Lierke et al (US 4,981,425) in view of Bauckhage et al (US 5,164,198), Goldschmidt et al (DE 4328088), and Onishi (US 3,198,170).

Lierke et al provide for an ultrasonic standing-wave atomizer arrangement for producing a solid or liquid spray mist, the atomizer including a sonotrode (1), with a corresponding sonotrode component (2) arranged lying opposite the sonotrode, a standing ultrasonic field formed in space between the sonotrode (1) and the component (2) in the case of operation, and a solid or liquid feeding device (7) for feeding the spray mist on a workpiece, by means of which

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the solid or liquid can be fed into the vicinity of a maximum of the sound particle velocity of the ultrasonic field, characterized in that wherein the feeding device (7) has in the region of the standing ultrasonic field a single pipe (7) for discharging the solid or liquid, and in that the pipe is arranged in the region of a selected maximum of the sound particle velocity of the standing ultrasonic field. Lierke et al are silent concerning 1) at least two feeding pipes, 2) the arrangement/placement of the pipes at a selected maximum of the sound particle velocity of the ultrasonic field, and 3) a paint feeding device for feeding paint through the pipes into the standing ultrasonic field. However, it was known in the art, at the time the invention was made, to provide in an ultrasonic standing wave atomizer with plural pipes having plural outlets in communication with sonotrodes to allow for the atomization of the material (i.e., a micro fine mist) at a high pulverizing capacity over a larger surface area of a workpiece as evidenced by Bauckhage et al (col. 4, lines 32-41; see Fig. 5). In light of the teachings of Bauckhage et al, it would have been obvious to one of ordinary skill in the art to utilize a plurality of pipes in the apparatus of Lierke et al in order to atomize the material at a higher pulverizing capacity over a larger surface area of the workpiece. Even though the combined teachings of Lierke et al and Bauckhage et al would provide for arrangement or placement of plural pipes in the vicinity of the sound particle velocity of the standing ultrasonic field without the suggestion of play in placement/arrangement of the pipes in the ultrasonic field especially at the maximum, Goldschmidt et al establish the conventional wisdom of the routineer in the ultrasonic standing wave atomizer art, to place a feeding pipe having an outlet above the ultrasonic field (Fig. 1), in the center of the ultrasonic field (Fig. 3) and beyond (Fig. 2). In light of the teachings of Goldschmidt et al, one of ordinary skill in the art would expect that the placement or

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arrangement (fixation) of the plurality of pipes at the maximum point in the field would be within the purview one skilled in the art with the desired placement being determined via routine experimentation. While neither Lierke et al, Bauckhage et al, nor Goldschmidt et al, teach use of the atomizer with a paint feeder or paint supply, Onishi provides evidence to the conventional usage of an ultrasonic wave atomizer to spray paint including fine particles therein onto a workpiece (col. 3, lines 10-28). Therefore, it would have been obvious to one of ordinary skill in the art to use a paint feeding device as taught by Onishi, in the ultrasonic atomizer as defined by the combination above, in order to apply a paint having fine particles therein to the workpiece. Finally, because Lierke et al provides an atomizer capable of spraying solid or liquid, it would have been within the purview of one skilled in the art to utilize the atomizer defined by the combination above to dispense paint having fine particles therein.

With respect to the atomizer having pipes separated a distance to provide separate sheets of paint, the apparatus as defined by the combination above would enable separate sheets of paint to be applied to a workpiece as Bauckhage et al illustrate in Fig. 5 what appears to be the plurality of pipes being separated by equal distance.

With respect to arrangement of the pieces of pipes with respect to an imaginary line, the apparatus as defined by the combination above would include the plurality of pipes being separated by equal distance having outlet openings posed on an imaginary line in line with the pipe (7) of Lierke et al (see Fig. 5 of Lierke et al).

With respect to the shape of the sonotrode faces, the apparatus as defined by the combination above has faces cylindrical in shape as Lierke et al provide for sonotrodes (q, 2) cylindrical in shape.

With respect to the use of further structure to provide air flow to the apparatus, Lierke et al provide for air curtain means (6; col. 3, lines 4-8), such that the apparatus as defined by the combination above would be provided with air flow structure to prevent material from reaching surfaces of the sonotrodes.

With respect to the use of the use of internal and/or external charging structure, while neither Lierke et al nor Bauckhage et al disclose use of a charging structure, Onishi discloses use of the high voltage or charging structure (col. 3, lines 24-28) in addition to the ultrasonic wave transducer to promote projection of the paint material onto the surface of the workpiece. In light of the teachings of Onishi, it would have been obvious to one of ordinary skill in the art to provide a high voltage or charging structure in communication (internally and/or externally) with the apparatus as defined by the combination above in order to promote projection of the paint material onto the surface of the workpiece.

Claims 6, 7, and 13 are rejected under 35 U.S.C. 103(a) as being unpatentable over Lierke et al (US 4,981,425), Bauckhage et al (US 5,164,198), Goldschmidt et al (DE 4328088), and Onishi (US 3,198,170) as applied to claim 1 above, and further in view of Orme et al (US 5,259,593).

The teachings of Lierke et al, Bauckhage et al, Goldschmidt et al, and Onishi have been mentioned above but none teach or suggest configuring the outlet openings of the plurality of pipes in a triangular configuration. However, it was known in the art, at the time the invention was made, to configure pipe outlets of an atomizer (i.e., of the vibrational wave transducer type) in a triangular configuration or any desired configuration to produce complicated forms or to

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enable the spray of material to conform to the shape of the workpiece being worked upon as evidenced by Orme et al (col. 5, lines 28-47 and col. 8, lines 7-55); See Figs. 2-3). It would have been obvious to one of ordinary skill in the art to provide a triangular configuration of the pipe outlets as taught by Orme et al, in the apparatus defined by the combination above in order to produce complicated forms or to enable the spray of material to conform to the shape of the workpiece being worked upon.

With respect to claim 13, Orme et al establish the conventional wisdom of configuring pipe outlets of an atomizer (i.e., of the vibrational wave transducer type) in a triangular configuration or any desired configuration to produce complicated forms or to enable the spray of material to conform to the shape of the workpiece being worked upon as evidenced by col. 5, lines 28-47 and col. 8, lines 7-55; See Figs. 2-3. Therefore, Applicants' recitation of the pieces of pipe being arranged in an equilateral triangle would be well within the purview of one skilled in the art.

Claims 9 and 14 are rejected under 35 U.S.C. 103(a) as being unpatentable over Lierke et al (US 4,981,425), Bauckhage et al (US 5,164,198), Goldschmidt et al (DE 4328088), and Onishi (US 3,198,170) as applied to claim 1 above, and further in view of Pitchon et al (US 4,600,472) for reasons set forth in the final office action.

The teachings of Lierke et al, Bauckhage et al, Goldschmidt et al, and Onishi have been mentioned above but none teach or suggest surfaces of the pipes including a hydrophobic coating (i.e., a tetrafluoroethylene coating). However, it was known in the art, at the time the invention was made, to provide hydrophobic or tetrafluoroethylene coating on surfaces of a nozzle to

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prevent material buildup on the surfaces and prevent nozzle clogging as evidenced by Pitchon et al (col. 7, lines 51-56). It would have been obvious to one of ordinary skill in the art to provide hydrophobic or tetrafluoroethylene coating as taught by Pitchon et al on surfaces of pipes in the apparatus defined by the combination above in order to prevent material buildup on the surfaces and prevent clogging of the outlets.

Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Laura Edwards whose telephone number is (571) 272-1227. The examiner can normally be reached on Monday-Friday.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Nadine Norton can be reached on (571) 272-1465. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/Laura Edwards/
Primary Examiner
Art Unit 1792

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April 18, 2008